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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/804,894 | 03/19/2004 | Edward P. Browne | PO-8155/MD-04-18 | 8194 |
| 157 7590 06/14/2007 BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205 | | | EXAMINER FEELY, MICHAEL J | |
| | | | ART UNIT 1712 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/804,894 | BROWNE, EDWARD P. | |
| | Examiner | Art Unit | |
| | Michael J. Feely | 1712 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18, 19, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 19, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Pending Claims

Claims 1-16, 18, 19, 33, and 34 are pending.

Response to Amendment

1. The rejection of claims 20-31 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McDaniel et al. (US Pat. No. 6,077,978) has been rendered moot by the cancellation of these claims.
2. The rejection of claims 20-31 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over O'Connor et al (US Pat. No. 6,359,101) has been rendered moot by the cancellation of these claims.
3. The rejection of claims 20-31 under 35 U.S.C. 112, second paragraph, has been rendered moot by the cancellation of these claims.
4. The rejection of claims 1-16, 18, 19, 33, and 34 under 35 U.S.C. 112, second paragraph, has been overcome by amendment.

Claim Rejections - 35 USC § 102/103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. The rejection of claims 1-10, 13-16, 18, 19, 33, and 34 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over O'Connor et al (US Pat. No. 6,359,101) stands.

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Regarding claims 1, 5-10, 13-16, 18, and 19, O'Connor et al. disclose: *(1)* a process for the polyoxyalkylation of a starter (Abstract; column 1, lines 5-18), comprising:

(a) establishing oxyalkylation conditions in an oxyalkylation reactor in the presence of a DMC catalyst (Abstract; column 14, line 15 through column 15, line 62; Examples);

(b) continuously introducing into the reactor at least one alkylene oxide and a low molecular weight starter (Abstract; column 3, line 58 through column 6, line 2) acidified with at least one of an inorganic protic mineral acid and an organic acid, wherein the acid comprises greater than 100 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); *(5)* wherein the acid is chosen from *see claim for list* (column 10, lines 57-64; Examples); *(6)* wherein the acid is chosen from *see claim for list* (column 10, lines 57-64; Examples); *(7)* wherein the acid is phosphoric acid (column 10, lines 57-64; Examples); *(8)* wherein the acid comprises greater than 100 ppm to about 2,000 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); *(9)* wherein the acid comprises about 200 ppm to about 300 ppm, based on the weight of the starter (column 10, lines 57-64; Examples); *(10)* wherein the reactor is a continuous reactor (column 14, line 15 through column 15, line 62); *(13)* wherein the continuous reactor comprises a back-mixed reactor (column 14, line 15 through column 15, line 62); *(14)* wherein the DMC catalyst is zinc hexacyanocobaltate (column 12, line 43 through column 13, line 30 – *see referenced documents in this passage*); *(15)* wherein the alkylene oxide is *see claim for list* (Abstract; column 3, line 58 through column 6, line 2; Examples); *(16)* wherein the alkylene oxide is propylene oxide (Abstract; column 3, line 58 through column 6, line 2); *(18)* wherein the process is continuous (column 14, line 15 through column 15, line 62); and *(19)* wherein the process is semi-batch (column 14, line 15 through column 15, line 62).

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O'Connor et al. disclose, "These polyols can range in molecular weight from 300 to 30,000," (*see column 13, line 55 through column 14, line 14*); however, they do not explicitly disclose the claimed molecular weight range of about 260 Da to about 2,500 Da.

Firstly, it has been found that when a claimed range, "overlap(s) or lie(s) inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists – *see MPEP 2144.05*. Secondly, it should be noted that the O'Connor et al. reference satisfies all of the process limitations set forth in the instant claims. In light of this, one of ordinary skill in the art would have expected to inherently produce the same or obvious results from the same or obvious process.

Therefore, the teachings of O'Connor et al. would have inherently or obviously satisfied the instant invention because they disclose the same process limitations set forth in the instant claims, wherein one of ordinary skill in the art would have expected to inherently produce the same or obvious results from the same or obvious process. Furthermore, they disclose a molecular weight range that overlaps the molecular weight range set forth in the instant claims.

Regarding claims 2-4, the starter materials set forth in the claims are recognized as non-preferred materials in O'Connor et al – *see column 10; lines 30-38; column 11, lines 44-55*.

However, it has been found that, "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain," – *In re Heck*, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). *See: MPEP 2123*.

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Therefore, the limitations of claims 2-4 are obviously or inherently satisfied because O'Connor et al. consider these starter materials as non-preferred embodiments.

Regarding claims 33 and 34, the teachings of O'Connor et al. are as set forth above and incorporated herein to satisfy the limitations of claims 20-31, 33, and 34.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. The rejection of claims 1-16, 18, 19, 33 and 34 under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al. (US Pat. No. 6,077,978) stands.

Regarding claims 1-16, 18, and 19, McDaniel et al. disclose an almost identical process to claim (1) (Abstract; column 6, lines 48-58); wherein the starters of claims (2-4) are used (column 5, lines 25-39; column 7, lines 7-20); wherein the acids of claims (5-7) are used (column 6, lines 3-23); wherein the continuous reactor/conditions of claims (10-13) are used (column 7, lines 21-55); wherein the catalyst of claim (14) is used (Examples); wherein the alkylene oxide of claims (15-16) are used (Examples); wherein the approximate molecular weight range of claim (1) is produced (Examples); (18) wherein the process is continuous (column 7, lines 21-55); and (19) wherein the process is semi-batch (column 7, lines 21-55).

The teachings of McDaniel are deficient in that they fail to explicitly disclose the use of: (1) greater than 100 ppm of acid; (8) greater than 100 ppm to about 2,000 ppm of acid; and (9) about 200 ppm to about 300 ppm of acid, all based on the weight of the starter. McDaniel

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discloses, “*In general*, less than 100 ppm acid based on total low molecular weight starter need to be added,” (column 6, lines 55-58).

McDaniel et al. establish that this concentration is a result-effective variable, wherein a minimum is required to prevent de-activation of the DMC catalyst (column 5, lines 3-24). Their *general* teaching of less than 100 ppm is open to possible ranges above 100 ppm. Furthermore, applicant fails to show criticality for the lower end-points of the claimed ranges.

In light of this, it has been found that, “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation,” – *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); and, “A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation,” – *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the acid concentration in the process of McDaniel et al. because McDaniel et al. establish that this concentration is a result-effective variable, wherein a minimum is required to prevent de-activation of the DMC catalyst. Furthermore, applicant fails to demonstrate criticality for the claimed ranges.

Further with respect to the range of claim (1), the claimed range of greater than 100 ppm potentially abuts the disclosed range of less than 100 ppm. Even if these ranges do not touch or overlap, it has been found that a *prima facie* case of obviousness exists where, “the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would

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have expected them to have the same properties,” – *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of “having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium” as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

In addition, it should be noted that if these obvious amounts of acid were used in the process of McDaniel et al. one of ordinary skill in the art would have expected to yield the same molecular weight ranges set forth in claim (1) (*of about 260 Da to about 2,500 Da*). The use of these obvious amounts would yield the same or an obvious process of the one set forth in the claims. This same or obvious process would be expected to inherently produce the same or obvious results.

Regarding claims 33 and 34, the teachings of McDaniel et al. are as set forth above and incorporated herein to satisfy the limitations of claims 33 and 34.

9. The rejection of claims 11 and 12 under 35 U.S.C. 103(a) as being unpatentable over O’Connor et al (US Pat. No. 6,359,101) in view of McDaniel et al. (US Pat. No. 6,077,978) stands.

The teachings of both O’Connor et al. and McDaniel et al. are as set forth above and incorporated herein. The teachings of O’Connor et al. disclose a continuous reaction; however, they fail to explicitly disclose: (11) the use of a tubular reactor; and (12) the use of multi-point addition for introducing the reactants.

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The analogous nature of these two references is readily established in light of the prior art rejections set forth above. In light of this, the teachings of McDaniel et al. establish that these limitations are recognized in the art as suitable reactors and feed techniques (*see column 7, lines 21-55*) for this type of continuous reaction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a tubular reactor and multi-point addition, as taught by McDaniel et al., in the process of O'Connor et al. because the teachings of McDaniel et al. establish that these limitations are recognized in the art at suitable reactors and feed techniques for this type of continuous reaction.

Response to Arguments

10. Applicant's arguments filed March 23, 2007 have been fully considered but they are not persuasive.

On page 10 of the response, Applicant argues that the processes of O'Connor are not commercially viable due to their material ratios and reactor specifics. In essence, they argue that the instant invention is not obvious because of their own reactor specifics and material ratios used. In response to applicant's argument that the reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., material ratios and reactor specifics) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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On page 11 of the response, Applicant argues that O'Connor et al. teach away from the use of glycerine. Specifically, they state that glycerine is not used and can only be used in the prior art method with small reactors, wherein these small reactors are not suitable for commercially viable processes. Firstly, it should be noted that glycerine is only featured in dependent claims 2 and 3. Secondly, although glycerine is a *non-preferred* material (*see column 11, lines 44-55*), it still represents a relevant prior art teaching – *see rejection in section 7 above*. Thirdly, there is nothing in the instant claims that limits or addresses the size of the reactor used.

On page 13 of the response, Applicant accuses the Examiner of hindsight reconstruction in the rejection over McDaniel et al. This is with respect to the instantly claimed range of *greater than 100 ppm of acid*. As discussed above, the ranges in question are so close that it is difficult to envisage the differing effects of the instantly claimed range and the prior art range. This is especially the case with the lower limit of the instant invention (*just above 100 ppm*) and the upper limit of the prior art (*just below 100 ppm*). Applicant has also failed to show criticality for this end point. Without this showing, it is unclear what makes the 100-ppm threshold special. This lack of criticality also renders the other claimed ranges obvious because the prior art demonstrates that acid quantity is a result-effective variable, wherein a minimum is required to prevent de-activation of the DMC catalyst.

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Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

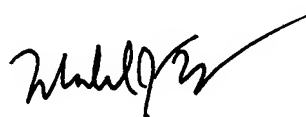
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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely
Primary Examiner
Art Unit 1712

June 8, 2007

MICHAEL FEELY
PRIMARY EXAMINER